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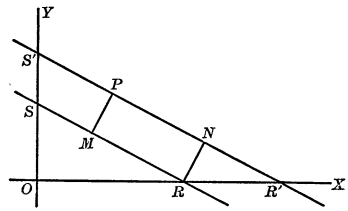
Other points in the papers of Professor Ziwet and Professor Jackson are met, I believe, by my discussion of "mass" in the "Bibliographical Note" already cited. I beg to repeat, however, that I do not put forward this discussion with any idea that it would be profitable for use in the class room. The chief end of a course in dynamics is not a definition of "mass," but the development of ability to master fundamental dynamical problems. *Any teacher who desires to avoid all these controversial matters, and proceed as rapidly as possible to the important principles,* has only to follow the program outlined in my "Logical Skeleton," from which all polemical matter has been intentionally excluded.[1]

II. Relating to the Derivation of a Distance Formula.

By R. M. Mathews, Junior College, Riverside, Calif.

In the usual course in analytic geometry the formula for the distance from a point to a line is derived from Hesse's "normal form" for the equation of a straight line. It is not necessary, however, to introduce the "normal form"



merely for this purpose. The distance formula may easily be derived directly in the manner given below.

In the accompanying figure let (x_1, y_1) be the coördinates of the given point P and $ax + by + c = 0$ the equation of the given line SR. Also let $S'R'$ be a line through P parallel to SR and let RN be perpendicular to SR at R.

Then

$$d = PM = RN.$$

From similar triangles

$$\frac{RN}{RR'} = \frac{OS}{SR} \qquad \text{and} \qquad d = \frac{RR' \cdot OS}{SR}.$$

The equation of $S'R'$ is

$$ax + by + k = 0, \qquad \text{where} \qquad k = -ax_1 - by_1.$$

Also,

$$RR' = OR' - OR = -\frac{k}{a} + \frac{c}{a} = \frac{c - k}{a},$$

[1] [Reprints of this "Skeleton," which a number of teachers have found useful in the class room, may be obtained from the Secretary, Professor W. D. Cairns, 27 King Street, Oberlin, O., at ten cents a copy. *Editors.*]

$$OS = -\frac{c}{b}, \quad SR = \pm\frac{c}{ab}\sqrt{a^2+b^2}.$$

Hence,

$$d = \frac{c-k}{a}\left(-\frac{c}{b}\right)\frac{ab}{\pm c\sqrt{a^2+b^2}} = \frac{ax_1+by_1+c}{\mp\sqrt{a^2+b^2}}.$$

As $-c$ was a factor, we have the usual convention of taking the sign of the radical opposite to that of c.

NOTES AND NEWS.

EDITED BY D. A. ROTHROCK, Indiana University, Bloomington, Indiana.

Mr. H. R. DOUGHERTY, head of the department and professor of mathematics in New York Military Academy, Cornwall-on-Hudson, has been commissioned first lieutenant of infantry in the officers' reserve corps of the national army.

Professor M. E. GRABER, of the department of physics, Heidelberg University, Tiffin, O., and a charter member of the Association, is on leave of absence studying at the University of Chicago.

Miss B. M. TURNER, a charter member of the Association, and formerly principal of the Moundsville (W. Va.) High School, is assistant director of The Phebe Anna Thorne Model School, of Bryn Mawr College.

Mr. RALPH BEATLEY, formerly instructor in mathematics in the Horace Mann High School, New York City, has been commissioned second lieutenant in the Coast artillery service of the regular army.

Professor L. P. EISENHART, of Princeton University, as vice-president, section A, American Association for the Advancement of Science, delivered his retiring address at the Pittsburgh meeting, on the subject "The kinematical generation of surfaces."

In Vol. 11, No. 4, of *The Tôhoku Mathematical Journal*, Sir THOMAS MUIR has a paper on "A theorem including Cayley's on zero axial skew determinants of even order"; and in the *Transactions of the Royal Society of South Africa*, Vol. VI, Part I, a paper entitled "A note on Pfaffians connected with the difference-product."

Dr. W. S. FRANKLIN, formerly of Lehigh University, has been appointed special lecturer in physics and electrical engineering in the Massachusetts Institute of Technology.

According to *Science*, Professor C. W. COBB, of Amherst College, has been granted leave of absence to enter the aviation service of the government as an instructor in connection with the eight ground schools for aviators.